

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: RSA

Report Number: P219628

Luminaire Tested: **MRZ-1-REC-X-4-L30-80-NFL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219628
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P14872)
Test Lab: INNOVATION CENTER (G1)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: RSA
Catalog Number: MRZ-1-REC-X-4-L30-80-NFL-UNV-X-STD-LSL
Description: MRZ INTEGRAL LED DOWNLIGHT
25 DEGREE NARROW FLOOD OPTIC WITH LINEAR SPREAD LENS, LIGHT LEVEL 4
Light Source: (1) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1289.5 lumens
Efficiency: N/A
Efficacy: 81.6 lumens/watt
Spacing Criteria (0/90/45): 0.4 / 0.87 / 0.54
Luminous Opening: Circular (Dia: 0.17' x H: 0')
CIE Type: Direct

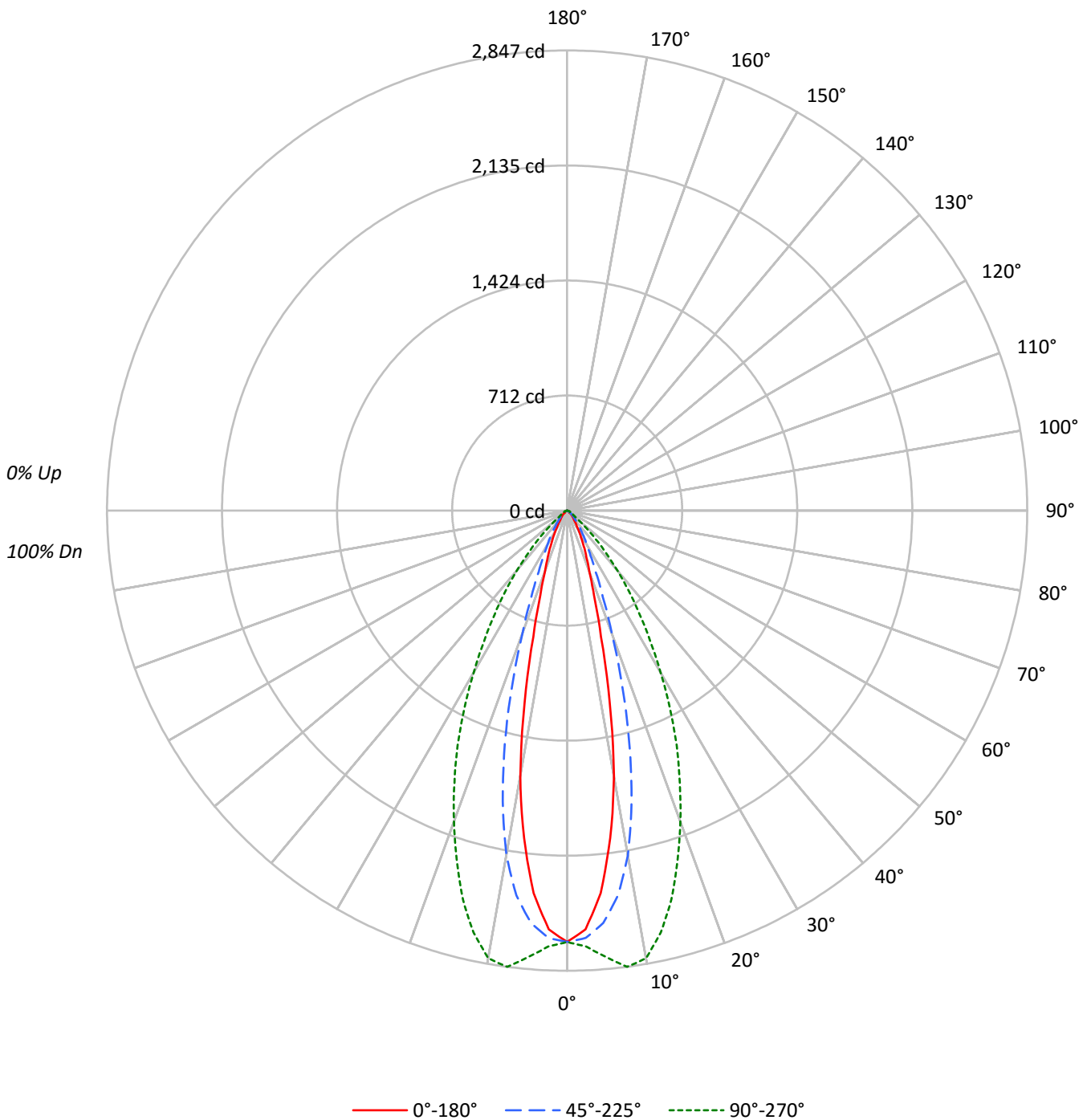
Input Watts (W): 15.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94
2	109	104	100	97	106	102	99	96	99	96	94	96	94	92	93	92	90	88
3	104	98	93	89	102	96	92	89	94	90	87	91	88	86	89	87	84	83
4	99	92	87	83	97	91	86	82	89	85	81	87	83	80	85	82	80	78
5	95	87	81	77	93	86	81	77	84	80	76	83	79	76	81	78	75	74
6	90	82	77	73	89	81	76	72	80	75	72	79	75	72	77	74	71	70
7	87	78	73	69	85	77	72	68	76	71	68	75	71	68	74	70	67	66
8	83	74	69	65	82	74	68	65	73	68	65	72	67	64	71	67	64	63
9	80	71	65	62	79	70	65	62	69	65	61	69	64	61	68	64	61	60
10	77	68	62	59	76	67	62	59	66	62	59	66	61	58	65	61	58	57

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1316583	1316583	1316583
5°	1176351	1268372	1373912
10°	835903	1084094	1408936
15°	413071	759178	1272772
20°	211330	422713	1075919
25°	132884	227063	872593
30°	79930	139065	658922
35°	51557	89984	470641
40°	36389	58674	310888
45°	27980	40678	174087
50°	16810	27939	74070
55°	12559	18838	39138
60°	10756	12631	25162
65°	10624	10624	21247
70°	10531	7934	28851
75°	10484	6863	20778
80°	5114	5114	10229
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	233.7	18.1
10°-20°	435.8	33.8
20°-30°	327.2	25.4
30°-40°	179.9	14.0
40°-50°	73.0	5.7
50°-60°	23.2	1.8
60°-70°	11.0	0.9
70°-80°	5.3	0.4
80°-90°	0.3	0.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	996.7	77.3
0°-40°	1176.6	91.2
0°-60°	1272.8	98.7
0°-90°	1289.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1289.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2668	2668	2668	2668	2668	
5°	2375	2430	2561	2712	2774	204
15°	809	951	1486	2211	2492	237
25°	244	273	417	1217	1603	114
35°	86	102	149	452	781	55
45°	40	38	58	111	250	30
55°	15	16	22	27	46	14
65°	9	11	9	11	18	9
75°	6	4	4	4	11	5
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5
2.5°	2593.8	2593.8	2592.0	2597.4	2608.3	2608.3	2613.8	2619.3	2624.7	2635.7	2646.6
5°	2375.2	2378.8	2377.0	2397.1	2411.6	2429.8	2435.3	2466.3	2489.9	2526.4	2561.0
7.5°	2043.7	2045.5	2061.9	2085.6	2122.0	2142.0	2169.4	2213.1	2265.9	2335.1	2402.5
10°	1668.5	1668.5	1694.0	1728.6	1757.7	1797.8	1817.8	1888.9	1965.4	2061.9	2163.9
12.5°	1214.9	1214.9	1258.6	1284.1	1337.0	1371.6	1400.7	1482.7	1582.9	1706.7	1841.5
15°	808.7	823.3	839.7	874.3	921.7	950.8	970.8	1054.6	1173.0	1311.5	1486.3
17.5°	550.1	559.2	570.1	597.4	621.1	635.7	653.9	724.9	810.6	945.3	1129.3
20°	402.5	411.7	420.8	433.5	448.1	455.4	468.1	504.5	566.5	661.2	805.1
22.5°	311.5	318.8	326.0	333.3	344.3	349.7	357.0	380.7	413.5	473.6	577.4
25°	244.1	244.1	253.2	258.6	267.8	273.2	282.3	298.7	324.2	358.8	417.1
27.5°	185.8	187.6	193.1	200.4	207.6	213.1	222.2	236.8	253.2	276.9	313.3
30°	140.3	143.9	147.5	153.0	162.1	167.6	173.0	185.8	200.4	218.6	244.1
32.5°	107.5	111.1	112.9	118.4	125.7	129.3	134.8	145.7	158.5	176.7	193.1
35°	85.6	85.6	89.3	91.1	98.4	102.0	105.6	112.9	125.7	136.6	149.4
37.5°	67.4	69.2	71.0	72.9	78.3	80.1	82.0	87.4	94.7	105.6	116.6
40°	56.5	58.3	58.3	58.3	60.1	60.1	61.9	65.6	72.9	80.1	91.1
42.5°	47.4	47.4	47.4	47.4	47.4	47.4	49.2	51.0	56.5	63.8	72.9
45°	40.1	38.3	38.3	38.3	38.3	38.3	38.3	41.9	45.5	51.0	58.3
47.5°	29.1	31.0	31.0	31.0	31.0	31.0	32.8	32.8	36.4	41.9	45.5
50°	21.9	23.7	23.7	25.5	25.5	25.5	25.5	27.3	31.0	34.6	36.4
52.5°	18.2	18.2	18.2	20.0	20.0	20.0	20.0	21.9	25.5	27.3	29.1
55°	14.6	14.6	14.6	14.6	16.4	16.4	18.2	20.0	21.9	21.9	21.9
57.5°	12.8	12.8	12.8	12.8	12.8	14.6	14.6	16.4	18.2	16.4	16.4
60°	10.9	10.9	10.9	10.9	10.9	12.8	12.8	14.6	12.8	12.8	12.8
62.5°	10.9	10.9	9.1	9.1	10.9	10.9	10.9	10.9	10.9	10.9	9.1
65°	9.1	9.1	9.1	9.1	9.1	10.9	10.9	9.1	9.1	7.3	9.1
67.5°	9.1	9.1	7.3	9.1	9.1	9.1	9.1	7.3	7.3	7.3	7.3
70°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	5.5	5.5	5.5	5.5
72.5°	5.5	5.5	5.5	7.3	5.5	5.5	5.5	5.5	5.5	5.5	5.5
75°	5.5	5.5	5.5	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
77.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	1.8	1.8
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5	2668.5
2.5°	2655.7	2663.0	2672.1	2681.2	2684.8	2688.5	2694.0	2697.6	2699.4	2699.4
5°	2597.4	2633.8	2668.5	2697.6	2712.2	2724.9	2746.8	2761.3	2774.1	2774.1
7.5°	2473.6	2550.1	2621.1	2683.0	2710.3	2739.5	2785.0	2819.6	2837.8	2847.0
10°	2271.4	2386.1	2493.6	2588.3	2632.0	2668.5	2734.0	2779.6	2801.4	2812.3
12.5°	1996.3	2147.5	2284.1	2402.5	2455.3	2499.1	2566.5	2626.6	2657.5	2673.9
15°	1675.8	1854.3	2016.4	2151.2	2211.3	2265.9	2355.2	2428.0	2471.7	2491.8
17.5°	1337.0	1557.4	1741.3	1896.1	1950.8	2010.9	2114.7	2198.5	2256.8	2271.4
20°	1023.7	1262.3	1471.7	1632.0	1695.8	1755.9	1872.5	1961.7	2025.5	2049.2
22.5°	745.0	976.3	1207.6	1378.9	1451.7	1517.3	1633.9	1730.4	1797.8	1821.5
25°	531.9	719.5	949.0	1143.9	1216.7	1282.3	1398.9	1497.2	1566.5	1602.9
27.5°	388.0	515.5	717.7	918.0	996.3	1065.6	1173.0	1275.0	1340.6	1375.2
30°	284.1	367.9	519.1	714.0	799.6	867.0	981.8	1067.4	1138.4	1156.6
32.5°	216.8	264.1	367.9	526.4	613.8	684.9	796.0	877.9	934.4	954.4
35°	165.8	194.9	256.8	377.0	451.7	524.6	630.2	714.0	763.2	781.4
37.5°	129.3	149.4	185.8	265.9	324.2	388.0	491.8	561.0	601.1	624.8
40°	103.8	118.4	142.1	189.4	229.5	276.9	364.3	429.9	469.9	482.7
42.5°	83.8	94.7	107.5	134.8	162.1	196.7	267.8	313.3	346.1	353.4
45°	65.6	72.9	87.4	100.2	111.1	129.3	178.5	220.4	240.4	249.5
47.5°	52.8	61.9	61.9	69.2	76.5	89.3	120.2	143.9	158.5	162.1
50°	40.1	41.9	45.5	49.2	52.8	56.5	72.9	87.4	96.5	96.5
52.5°	29.1	31.0	31.0	32.8	34.6	38.3	47.4	54.6	60.1	61.9
55°	21.9	21.9	23.7	25.5	27.3	29.1	34.6	41.9	43.7	45.5
57.5°	16.4	16.4	18.2	20.0	21.9	21.9	27.3	31.0	34.6	38.3
60°	12.8	12.8	14.6	14.6	16.4	18.2	23.7	25.5	25.5	25.5
62.5°	10.9	10.9	10.9	12.8	12.8	12.8	16.4	21.9	23.7	23.7
65°	9.1	9.1	9.1	9.1	10.9	10.9	12.8	14.6	18.2	18.2
67.5°	7.3	7.3	7.3	7.3	9.1	9.1	12.8	14.6	18.2	20.0
70°	5.5	5.5	5.5	7.3	7.3	9.1	10.9	14.6	18.2	20.0
72.5°	3.6	3.6	5.5	5.5	5.5	7.3	9.1	10.9	12.8	12.8
75°	3.6	3.6	3.6	3.6	3.6	3.6	5.5	9.1	9.1	10.9
77.5°	3.6	3.6	1.8	3.6	3.6	3.6	3.6	5.5	7.3	7.3
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	3.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)